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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/518,985	12/21/2004	Xavier Muldermans	L0008/US	3187

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EXAMINER

JOHNSON, CONNIE P

ART UNIT PAPER NUMBER

1752

DATE MAILED: 03/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/518,985	<b>Applicant(s)</b> MULDERMANS ET AL.	
	<b>Examiner</b> Connie P. Johnson	<b>Art Unit</b> 1752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 December 2004.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 11-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 12/20, 3/14/04
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 26 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 26 recites the limitation "the sheets" in line 1 of the claim. There is insufficient antecedent basis for this limitation in the claim. It appears that this claim was meant to depend on claim 25.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art

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are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakamura et al., U.S. Patent No. 4,468,453.

Nakamura et al. also teaches a phototoughening composition comprising (a) a conjugated diene monomer, having a molecular weight of 100,000 to 1,000,000 and block copolymers of the formula  $(A-B)_n - A_m$ , A representing a thermoplastic nonelastomeric polymer (polyvinyltoluene), B represents an elastomeric polymer block having a glass transition temperature of less than 10°C and having a molecular weight of 25,000 to 1,000,000, n is an integer from 1 to 10 and m is 0 or 1. Polyvinyltoluene meets the limitations of a monovinyl aromatic hydrocarbon in instant claim 1 (column 4, line 22). The polyvinyltoluene has a molecular weight of 2,000 to 120,000 (column 3, line 52). Component (b) comprises an ethylenically unsaturated compound and (c) a photopolymerization initiator (column 3, lines 39-60). The weight proportions of components (a), (b) and (c) relative to the composition of (a), (b) and (c) are: (a) 30 to 98%, (b) 2 to 70% and (c) 0.01 to 10% (column 3, lines 61-68). Suitable block copolymers of component (a) include polybutadiene and polyisoprene, wherein the block copolymers are no more than 90% (column 4, line 37). Component (b) may comprise esters of acrylic acid and methacrylic acid as in instant claims 17 and 19 (column 4, lines 46-47). Component (b) may also comprise trimethylolpropane triacrylate as in instant claim 18 (column 4, line 64). The photosensitive composition may also comprise at least one polymer consisting of 1,2-addition butadienes with a molecular weight of 70,000 to 500,000. The reference also teaches that suitable block A

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and B polymers include polyisoprene and polybutadiene (column 4, lines 20-40). The two block polymers may be combined so as to be present in a ratio of 80:20 to 20:80. The process may be used to form a printing plate by forming a photosensitive composition layer superimposed on the surface of a substrate and exposing it to radiation (column 9, lines 1-4). The photosensitive composition may also comprise a transparent cover film, having good adherence to the photosensitive composition (column 8, line 26). The substrate comprises polyester film, such as PET as in instant claims 25 and 26 (column 12, line 7). The flexographic printing relief is equivalent to the raised printing plate. Nakamura et al. also teaches that the dry process for forming an image is also suitable for forming a relief printing plate (column 11, line 10).

Claims 11-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over, Nakamura et al., EP 0525206 in view of De Keyzer et al., WO 02/057386.

Nakamura et al. teaches a photosensitive elastomer composition comprising a thermoplastic block copolymer composed of a monovinyl aromatic hydrocarbon polymer block, an ethylenically unsaturated compound component and a photopolymerization initiator, which may be used in flexographic printing plates (abstract). The ethylenically unsaturated compound is present in an amount of 1 to 20% and the photopolymerization initiator is present in an amount of 0.1 to 3% by weight (page 4, lines 7-10). Nakamura et al. also teaches the photosensitive elastomer composition may be used for printing plates, photoresist and screen for screen printing (abstract). In addition, Nakamura et al. teaches a thermoplastic block copolymer comprising at least one monovinyl substituted aromatic hydrocarbon polymer block

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comprised mainly of a monovinyl substituted aromatic hydrocarbon and at least one conjugated diene polymer block (page 3, lines 51-56). The compound with a conjugated linkage is also referred to as a butadiene or isoprene (page 5, lines 52-53). Although Nakamura et al. teaches a monovinyl aromatic hydrocarbon and a conjugated diene, he does not teach a molar ratio of isoprene to butadiene or molecular weight ranges of the monovinyl aromatic hydrocarbon. However, De Keyzer et al. teaches an adhesive composition, which may be used in printing plates, comprising one or more styrenic block copolymers in the general formula  $(A-C)_n - X(2)$ , where A independently is a polymer block of an aromatic vinyl compound and C is a mixed polymer block (B/I) of butadiene(B) and isoprene(I) in a weight ratio of 30:70 to 70:30. De Keyzer also teaches the polymer block A (aromatic vinyl compound) has a molecular weight in the range of 9,500 to 25,000 (page 4, lines 33-34). The polymer block C has a glass transition temperature ( $T_g$ ) of  $-50^{\circ}\text{C}$ , n is an integer equal to or greater than 2 and X is the residue of a coupling agent (abstract). The adhesive composition of De Keyzer et al. comprises block copolymers from 10-50% by weight (page 5, lines 7-12). Therefore, the composition would comprise at least 20% by weight of both components, isoprene and butadiene. De Keyzer et al. also teaches the molecular weight of the block copolymers ranges from 100,000 to 500,000 (page 5, lines 24-25). The block copolymers contain 1,2-vinyl bonds and/or 3,4-vinyl bonds in a proportion of 15% by weight (page 5, lines 27-29). The styrenic block copolymers comprise 10-50% by weight and therefore meet the limitations of instant claim 12. The weight proportions of the block copolymers in component (a) are in a range of 10-60% (De Keyzer, page 5, lines 6-12) as in instant claims 13 and 14. It would have been obvious to one of ordinary skill in the art to use the

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isoprene/butadiene ratio and the molecular weight range shown in De Keyzer et al. for the elastomer of Nakamura et al. because De Keyzer et al. shows the amount of the claimed polymer block and the molecular weight as an effective amount to use in polymer compositions for printing plates. Nakamura et al. also teaches examples of the ethylenically unsaturated compounds as acrylate and methacrylate (page 6, lines 38-39). Acrylate and methacrylate contain the same unsaturated group as butylacrylate, therefore they meet the limitations of instant claim 18.

Claims 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al., EP 0525206 in view of De Keyzer et al., WO 02/057386 as applied to claims 11-23 above, and further in view of Gruetzmacher et al., EP 0084851.

Nakamura et al. nor De Keyzer et al. teach a flexographic printing plate derived from a photopolymerizable composition comprising a support layer and a photopolymerizable layer. However, Gruetzmacher et al. teaches a process for preparing flexographic photopolymer elements comprising a photopolymer composition. The photopolymer composition comprises a support, a multilayer cover and a layer of elastomeric composition (abstract). The flexographic photopolymer elements of Gruetzmacher et al. are used in flexographic printing. Gruetzmacher et al. teaches a thermoplastic-elastomeric block copolymer which may contain methacrylates, styrene, butadiene, isoprene, acrylonitrile or combinations thereof. Since Nakamura and DeKeyzer teach elastomeric compositions made of the same types of components, it would be obvious to one of ordinary skill in the art to use the photosensitive composition of Nakamura et al. with the detailed printing plate of Gruetzmacher et al.

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Gruentzmacher et al. and Nakamura et al. use the same types of photopolymer. It would be obvious to one of ordinary skill in the art to use the specific compositions of Nakamura et al. with the detailed components of the printing plate with a reasonable expectation of making an effective flexographic printing plate. Further, Nakamura et al. does not teach a support layer made of polyester or PET as in claims 25 and 26. Gruetzmacher et al. teaches the support comprises film-forming synthetic polymers such as polyethylene terephthalate (page 15, lines 8-9). It would be obvious to one of ordinary skill in the art to use the synthetic polymers of Gruetzmacher et al. with the substrate in Nakamura et al. to form a photosensitive composition.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent Publication 2004/0242721, U.S. Patent No. 5,250,389, U.S. Patent No. 4,197,130, U.S. Patent No. 5,641,602.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Connie P. Johnson whose telephone number is 571-272-7758. The examiner can normally be reached on 7:30am-4:00pm Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CYNTHIA H. KELLY  
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